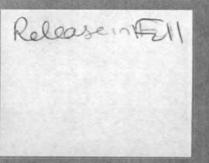
1044b UIC - EAST POPLAR OIL FIELD ENFORCEMENT CASE SDWA 1431 Folder ID: 13675 1957 Privileged



Region 8 13675

PRODUCTION DEPT. EILE COPY

EAST POPLAR UNIT WELL NO. 72'
ROOSEVELT COUNTY, MONTANA
MURPHY CORPORATION--OPERATOR

EAST FOPLAR UNIT WELL NO. 72 ROOSEVELT COUNTY, MONTANA MUEPHY CORFORATION—CFERATOR

MIDIONIE
COMPLETION DATAFage 2
ELECTRO LOS DATAFage 3
DELLL STEM TEST PECCED
CORE ANALYSIS REPORTPage 5
COZE BESCH PTICHPage 6
HUD PROGRAM SUMMARYPage 7
DELLLING BIT & TOTCO RECORDS
& DIAMOND CORE BIT RECORDSFage 8
SAMPLE DESCRIPTION

WELL HISTORY

WELL NO .:

East Poplar Unit No. 72

LOCATION:

SW SE Section 22, Township 28 North, Range 51 East

CONTRACTOR:

Zach Brooks Drilling Company

ELEVATION:

2145' Ground - 2157' K.B.

SPUDDED:

8:00 A.M., March 16, 1956

COMPLETED:

2:00 A.M., April 8, 1956 (Plugged and Abandoned)

TOTAL DEPTH:

5899' Schlumberger equals 5898' Driller

CASING:

9-5/8" @ 1060.33' with 400 sacks coment

TUBING:

None

PERFORATIONS:

None

PACKER:

None

ACID TREATMENT:

None

INITIAL POTENTIAL:

Plugged and Abandoned

TYPE COMPLETION:

Plugged and Abandoned

RECEIVED

APR 1 4 1956

OIL ARD GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA - BILLINGS

AUTHORITY FOR EXPENDITURE MURPHY CORPORATION - EAST POPLAR UNIT NO. 72 SH SE Section 22-728N-R51E, Roosevelt County, Montana

5 12 000101	DECTEMBER OF DE	, 2000000000000000000000000000000000000	integ nontain	
WELL DRILLING & CONSTRUCTION EX Drilling - Footage - 5880' @ 55 Daywork - 4 days @ 5 2 days @ 5	5,25/ft. 850/day &	TO CSG. PT. \$ 30,870 3,400	COMP. & EQUIP. \$ 1,550	TOTAL COST \$ 30,870 3,400 1,550
Loc. survey, permit & prep. Roads, fences, cattleguard, etc Mud mat. & chem., incl. oil & g Fuel and water),),	1,000 600 4,000 2,500	500	1,000 600 4,000 3,000
Commenting casing Coring materials & services Testing services incl. swabbing Other logs, surveys & analysis Posterating services	g	950 900 1,200 1,200	1,250 800 600	2,200 900 1,200 2,000 600
Perforating services Hydrafrac, acidize, etc. incl. Float equip., centralizers, etc Trucking, welding & other labor Supervision & Hiscellaneous	≎.	250 500 250	800 650 500 250	800 900 1,000 500
Total Est. Well Drlg. & Const WELL EQUIPMENT COSTS: Casing: 250 of 13-3/8" 0.D.	-	\$ 47,620 \$ 1,350	\$ 6,900	\$ 54,520 \$ 1,350
Casing: 5880' of 5-1/2" 0.D. Tubing: 5880' of 2-3/8" 0.D. Casing head & connections Xmas tree & connections	, ·	300	\$ 9,750 3,585	9,750 3,585 300 1,300
Total Est. Well Equip. Costs Total Est. Cost of Well		\$ 1,650 \$ 49,270	\$ 14,635 \$ 21,535	\$ 16,285 \$ 70,805
Flow lines Other line pipe, valves & fitti Trucking, welding & other labor Total Est. Cost of Lease Equi	r Lp.	A 40 050	\$ 3,000 500 \$00 \$ 4,000	\$ 3,000 500 500 \$ 4,000
TOTAL EST. COST OF WELL & LE	•	\$ 49,270 Tal estimated	\$ 25,535 COS 75	<u>\$ 74,805</u>
Nuncco Company Placid Oil Company The Carter Oil Company 16	% 1,448470% 2,096565% 8,545035% 6,335860% 6,335860% ,238210%	\$ 15,495 1,033 16,528 8,049 8,049 117	\$ 8,030 535 8,566 4,171 4,171 61	\$ 23,525 1,568 25,093 12,220 12,220 178

	•	MERCONIL OF EXPENDITU	ill Cr	
	Requested by:		Recommend Approval:	
	Division Production Supt.	3/9/58 Date	Staff Production Engineer	Date
	Recommend Approval:		Recommend Approval:	
(ent	Division Manager	3/9/56 Date	Budget Supervisor	Date
	Approved:		Approved:	
			Vice President-Operations	Date
	By	Date		

GENERAL RULES 201, 202, 213, 216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA BILLINGS OR SHELBY

NOTICE! THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	XX	Subsequent Report of Water Shut-off	,
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	:
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
	•	··	

	Notice of Intention to Pull or Alter Casing		Supple	mentary Well Histo	ry		
	Notice of Intention to Abandon Well		Report	of Fracturing			
							1
	(Indicate Above by Cho	eck Mark Na	ature of R	eport, Notice, or O	ther Data)		, -
	:				March 1	2	_{19.} 56
Follo	wing is a { notice of intention to do work }	on land {	owned leased	described as f	ollows:	·	-
				LEASEA	11otted 1-37-I	nd=12954(3687.)
	35037714314	Po	oc evel	•	T	ast Poplar	
••••••	MONTANA (State)	Q.	(County	*)		(Field)	
ו מעל	No. 72 SW SE Section (m. sec.)	22:		28N	51E	М. Р. М	
W C11	(m. sec.)			(Township)	(Range)	(Meridiar	a)
The v	well is located 660 ft. from S	South lin	e and	.1979 ft	from { E } Eas	tine of Sec	.22
	ocate accurately on Plat on back of this form the w	•			I ASK)		
	•						
The,	elevation of the derrick floor above the sea	level is2	1.45.!G	r•₩2157.!K	.В		
REAL	CAREFULLY t DET	TAILS OF	PLAN C	F WORK	1	READ CAREF	V.I.II
	late names of and expected depths to objective sands						
	, and all other important proposed work, particularly						-
		DETAILS RE	S OF WO	PRK			
Ć	Will set approximately 250° of 13 depth is expected to be approximated the Madison formation. 5-1/2° dequate blow-out preventers will	tely 60 c	00° so asing t	as to evalu rill be set	ate the produc	ing section	n
				AMOU	APPROVED IV	MY	
				DRILLIN	VG PERMIT NO	X640	 •
	ATTACHED CHECK FOR \$75.00			RECEIP		270	•
H	FOR DRILLING PERMIT FEE.				mena j O 1	500	
				01	IL AND GAS CONSERVATION	N COMMISSION	
a	Japanoved H. S. S. S. 3-14-56				OF THE STATE OF MONTAN		
App	oved subject to conditions on reverse of form		Co	mpanyMUR.P	NY CORPORATION		•••••
Date.	3/16/56		p.	Hora	la mi	20-	
			25	Har	old Milan		<u></u>
Ву	Trille	PLM.:	Ti	tleDivision	Production Sup	erintenden	i t
2	District Office Agent		Ad	Idress 602 Mid	1and Bank Bldg	, Billings	, Monta
NOTE		lat A to-		in Oundruplicate			•

144

Locate well by footage measurement from legal subdivision line, lease or property line and nearest drilling or producible well, if any.

Form No. 2 File at Billings or Shelby			Communication (Communication)	File at Blilings or Shelby
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Locate Well Correctly				Locate Lease Boundary
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<u> </u>	344	dix^{β}	Blue and	1.83
	411.4	Could - M. Co	ļ	And the state of t
•	·	SCALE-	-1"=2000'	

THE NOTICE OF INTENTION TO DRILL THIS WELL IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. Any person, before commencing the drilling of any oil or gas well, shall secure from the commission a drilling permit and shall pay to the commission therefor for the following amounts: for each well whose estimated depth is thirty-five hundred (3500) feet or less, twenty-five dollars (\$25.00); from thirty-five hundred and one (3501) feet to seven thousand (7000) feet, seventy-five dollars (\$75.00); seven thousand (7000) feet and deeper, one hundred fifty dollars (\$150.00).
- 2. No well is to be spudded in unless the proper surety drilling bond has been posted and approved by the Oil and Gas Conservation Commission of the State of Montana.
- 3. Cable tool operators must construct an adequate sump to contain all mild and water balled from the hole.
- 4. Surface or conductor casing must be properly cemented by an approved method to act as a tie in case an unexpected flow of oil, gas, or water should be proquitered, unless special permission has been granted for formation shut-off.
- 5. Any contemptated change in status of a well-dich as to plug and abandon, deepen, plug back, redrill, alter casing, etc., must be presented on Sunday Notices and Report of Wells form for approval by agent prior to commencement of work.
- 6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling shead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
- 7. The production string must be cemented unless a formation shut-off or packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected.
- 8. All production strings of casing must be tested by bailing or pressure to determine if there is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. If test shows failure, the defect must be corrected before any drilling operations are resumed.
- 9. A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
- 10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these markings at all times.
- furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon completion of the well.
 - 12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof.

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GENERAL RULES 201, 202, 213, 216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

NOTICE THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT THE COMMISSION.

OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	Subsequent Report of Water Shut-off
Notice of Intention to Change Plans	Subsequent Report of Shooting Williams, Committing
Notice of Intention to Test Water Shut-off	Subsequent Report of Altering Casing
Notice of Intention to Redrill or Repair Well	Subsequent Report of Redrilling of Repair 1108 COMMISSIC:
Notice of Intention to Shoot, Acidize, or Cement	Subsequent Report of Abandon Bear OF MONTANA - CILLINCS
Notice of Intention to Pull or Alter Casing	Supplementary Well History
Notice of Intention to Abandon Well	Report of Fracturing

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

described as follows: on land report of work done leased LEASE Allotted 1-37-Ind-12954 (3687) East Poplar Roos evelt MONTANA (State) 28N SW SE Section 22 (Township) (Range) (Meridian) South line and 1979 ft. from East line of Sec. 22 The well is located 660 ft. from (Locate accurately on Plat on back of this form the well location, and show lease boundary.) The elevation of the derrick floor above the sea level is 2157! K.B. DETAILS OF PLAN OF WORK READ CAREFULLY READ CAREFULLY (State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing

points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK RESULT

Spudded at 8:00 A.M., 3-16-56. Ran and cemented 36 jts. 1048.83' of 9-5/8", 32#, H-40, 8rd. thd., R-2, ST&C, American casing. Landed 11.50' below RKB at 1060.33'. Howco float shoe at 1060.33', Howco centralizer at 1045'. Cemented with 400 sacks of Ideal regular cement with 2 percent CaCl2. Circulated approximately 50 sacks of clean cement. Bumped plug with 1000#, released pressure, float held ok. Job complete at 4:00 P.M., 3-18-56

Approved V. S. S. S. 3-21-56
Approved subject to conditions on reverse of form 3/43/12 District Office Agent

TitleDivision Production Superintendent

Address 602 Midland Bank Bldg, Billings, Mont

NOTE:-Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

Locate well by footage measurement from legal subdivision line, lease or property

line and nearest drilling or producible well, if any.

Form No. 2	Rge 5/Z		Form No. 2
File at Billings or Shelby			File at Billings or Shelby
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Entrack Visitatible	1 1 121 2 1	**	3.3
deg e d'après de la company	SCALE—1"	′ = 2000′	·

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- 3. Cable-tool operators must construct an adequate, sump to contain all mud and water bailed from the hole.
- Surface or conductor tasing must be properly cemented by an approved method to act as a tie in case an unexpected flow of oil, gas, or water
- should be encountered, unless special permission has been granted for formation shut-off.

 Any contemplated change in status of a well such as to plug and abandon, deepen, plug back, redrill, alter casing, etc., must be presented on Sundry Notices and Report of Wells form for approval by agent prior to commencement of work.
- 6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling ahead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
- 7. The production string must be cemented unless a formation shut-off or packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected.
- All production strings of casing must be tested by bailing or pressure to determine if there is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. If test shows fallure, the defect must be corrected before any drilling operations are resunted.
- 9. A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
- 10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these
- . Juli 11. Copies of all directional surveys, electrical logs, or tops from electrical log if electric survey is run, formation tests, and cementing record, as furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon completion of the well.
 - 12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof,

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Well No. 12 is located 15 ft. from			A-m44 10 10 00
Uses and see No.) Crack County or Subdivision: Crack Popier Crack County or Subdivision: Crack County or Subdivision: Crack County or Subdivision: Crack County or Subdivision: County or Subdi	the second secon	Mary State State of the State o	APELL 10
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(State or Territory) The elevation of the derrick floor above sea level is	Well INO, 18 locat	tedft. from S line and 1979 ft. fr	om line of sec. 22
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Company MURPHY CORPORATION Country or subdivision (State or Territory) (State or Terri	THE PROPERTY OF THE PARTY OF TH		The state of the s
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Plug 5 4910 4990 18 section of common terms of the plan of work must receive approval in writing by the Geological Survey before operations may be commenced. Company MURPHY CORPORATION	Ping #2, 57541-5629	90 Backs Stower senent	
Pine 800 son Survive Company NURPHY CORPORATION	Plug #8, 55801-5451	7, 50 Macks Signed of Coment.	
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Company MURPHY CORPORATION			operations may be commenced.
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Harold Milam

TitleDivision Production Superintendent

Adapters-Material.

Billings, Montana

Killer System

Form No. 2 GENERAL RULES 201, 202, 213, 216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

NOTICEI

OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA

BILLINGS OR SHELBY

FEB 1 | 1957

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	Subsequent Report of Water Shpt-off (TAT) 12 PARTIES
Notice of Intention to Change Plans	Subsequent Report of Shooting, Acidizing, Cementing
Notice of Intention to Test Water Shut-off	Subsequent Report of Altering Casing
Notice of Intention to Redrill or Repair Well	Subsequent Report of Redrilling or Repair
Notice of Intention to Shoot, Acidize, or Cement	Subsequent Report of Abandonment
Notice of Intention to Pull or Alter Casing	Supplementary Well History
Notice of Intention to Abandon Well	Report of Fracturing

April 10 19 56 desperate and a property of the contract of th described as follows: Following is a on land leased report of work done LEASEA11otted 1-37-Ind-12954 (3687) Roosevelt East Poplar (Field) (County) (State)28N (Township) 51<u>F</u>..... M_P_M_ Well No. 72 SW SE Section 22 (Range) (Locate accurately on Plat on back of this form the well location, and show lease boundary.) The elevation of the derrick floor above the sea level is 2157! K.B. DETAILS OF PLAN OF WORK READ CAREFULLY READ CAREFULLY (State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.) DETAILS OF WORK RESULT Plugged and abandoned April 8, 1956. Plugged as follows-Plug #1, 5850'-5775', 30 sacks Slo-set cement. Plug #2, 5754'-5629', 50 sacks Slo-set cement. Plug #3, 5580'-5455', 50 sacks Slo-set cement. Plug #4, 5366'-5210', 60 sacks Slo-set cement. Plug #5, 4910'-4990', 35 sacks Slo-set cement. RECEIVED Plug #8, 830'- 900', 30 sacks Slo-set cement. Bottom of 9-5/8" surface casing. Plug #7, 8 sacks cement top of 9-5/8" surface casing. APR 1 1 1956 Rig released at 2:00 A.M., 4-8-56. Approved subject to conditions on reverse of form Company MURPHY CORPOR

8-57 Date. District Office Agent RIONISERVATION COMMISSION BILLINGS

Title Division .. Production . Superintendent

Address 602 Midland Bank Bldg.

NOTE:-Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

Locate well by footage measurement from legal subdivision line, lease or property line and nearest drilling or producible well, if any.

Form No. 2	Rge		Form No. 2 File at
Billings or Shelby	1. _{1.} 1. 5. ¹¹ 1.	It is first In	Billings or Shelby
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Locate Well			Locate Lease
Correctly	* * * * * * * * * * * * * * * * * * * *		Boundary
TWP			
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East Pogler	1 Jorna	red!	
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	.H.A.M.	13	the sets of the se
CONTROL STATE	and the second scale—	-1"==2000'	Mitty Garage Control

THE NOTICE OF INTENTION TO DRILL THIS WELL IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

- 1. Any person, before commencing the drilling of any oil or gas well, shall secure from the commission a drilling permit and shall pay to the commission therefor for the following amounts: for each well whose estimated depth is thirty-five hundred (3500) feet or less, twenty-five dollars (\$25.00); from thirty-five hundred and one (3501) feet to seven thousand (7000) feet, seventy-five dollars (\$75.00); seven thousand (7000)
- dollars (\$25.00); from thirty-five hundred and one (\$350.00); feet and deeper, one hundred fifty dollars (\$150.00); feet and deeper, one hundred fifty dollars (\$150.00).

 2. No well is to be spudded in unless the proper surety drilling bond has been posted and approved by the Qil and Gas Conservation Commission.
- Surface or conductor casing must be properly comented by an approved method to act as a dictin case an unexpected flow of oil, gas, or water should be encountered, unless special permission has been granted for formation shut-off. ्राप्तापः =1288यः _{वर्ष}ः सम्बद्धः
- 5. Any contemplated change in status of a well such as to plug and abandon, deepen; plug back, redfill, alter casing, etc., must be presented on Sundry Notices and Report of Wells form for approval by agent prior to commencement of work.
- 6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling shead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
- The production string must be cemented unless a formation shut-off of packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected,
- All production strings of casing must be tested by balling or pressure to determine if There is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. It test shows failure, the defect must be corrected before any drilling operations are resumed.
- A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
- 10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these markings at all times.
- 11. Copies of all directional surveys, electrical logs, or tops from electrical log if electric survey is run, formation tests, and cementing record, as furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon
- 12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof.

Length Dopth set

FOLD | MARK

Heaving plug-Material.

Adapters—Material

(SUBMIT IN TRIPLICATE)

Indian Agency Pt. Peck

UNITED STATES

DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY LOSS AL LOSS No. Beleve

NOTICE OF INTENTION TO TEST WATER SHUT-OFF NOTICE OF INTENTION TO REDRILL OR REPAIR W. NOTICE OF INTENTION TO SHOOT OR ACCIDIZE	SUBSEQUENT REPORT OF ALTERING CASING SUBSEQUENT REPORT OF REDRILLING OR REPAIR SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO ABANDON WELL	SUPPLEMENTARY WELL HISTORY
PARTY SECTION 1 - SECTION SECT	
(INDICATE ABOVE BY	HEEK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA) April 10 , 19 5
	April 10

The elevation of the derrick floor above sea level is 2157 ft. K. B.

DETAILS OF WORK ORIGINAL FORWARDED TO CASPER

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		30 mades Slowest coment.
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Plug #4	53661-53101-	80 angle Sio-set cement.
Plug #5	49101=4990	35 ander Sie-set cement.
Plug /6.	8301- 9001	20 saths Sie-set cement.
		/S" surface casing.
Plug #1.	8 sacks come	top of 9-5/8" surface casin

Approved (Grig. Sgd.) H. H. PERSIGO

District Engineer

Rig released at 2:00 A.M., 4-8-86

al in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION	10
Address 602 Hidland Bank Bldg.	1/ 0 20 2
Billings, Nontana	By Hawle Milan
	Harold Hilam

TitleDivision Production Superintendent

(SUBMIT IN QUADRUPLICATE)

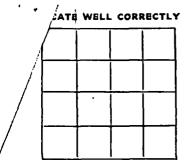
NOTICE!

S BA TE :-.)*

OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA BILLINGS OR SHELRY

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	Notice of Intention to Change Plans	Subs	equent Report of Sho	oting, Acidizing, Ce	menting	
1	Sotice of Intention to Test Water Shut-off	Subs	sequent Report of Alt	ering Casing		
1	Notice of Intention to Redrill or Repair Well	Subs	sequent Report of Ber	drilling or Repair		: i
1	Notice of Intention to Shoot, Acidize, or Cement	Subs	sequent Report of Ab	andonment	X	
.] 1	Notice of Intention to Pull or Alter Casing	Supp	olementary Well Histo	ory		$- _{\mathcal{G}_{\mathbb{C}}} _{-1}$
1	Notice of Intention to Abandon Well	Repo	ort of Fracturing			
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	(Indicate Above by Check	k Mark Nature of	Report, Notice, or O			
	•			April	10	, 19. 56
		l amore				
Followi	ng is a {report of work done } on	land lease	$\frac{2}{2}$ described as i	follows:		•
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	,,	•			, ,	
Well No	72 SW SE Section 22 (m. sec.)		28N	51 <u>E</u>		M.P.M.
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MULPAY



(SUBMIT IN TRIPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

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LOG OF WELL

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Address_60	2 Midland	Bank Bldg	, Billin	gs, Monta	naFie	ld (o	г Агеа) Eas	t Poplar	
The well is lo	cated <u>660</u>	ft. from	(S) line an	d 1979	ft. fro) m (\$	E) Morgilin	e of Sec.	22	
Sec22	; T. 28	<u>N;</u> R	51E	; County	R	osev	re1t		; Elevation_	2157' K.B.
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From.	to	•			_ Fro	m		to		
				CASIN	G RECO	ORD				
Size Casing	Weight Per Ft.	Grade	Thread	Casing	Set	Fr	om	То	Sacks of Cement	Cut and Pulled from
9 - 5/8"	32#	H=40	8	1060.33	<u>.</u>					
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Well is prod	ducing from		 		(pool) for	mation	•		
I. P	t	parrels of oil	per		hours	numat-	ng or flo	wing)		
	·N	Act of ass no	er ==	· ho		Manifitt	ig or IIC	/WIIIBJ		
	bar)Γ		<i>q</i>	% W.C.	
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INITIAL PRODUCTION—(Continued)

4	

, Initial 10-day a	verage production	(bbl./da	y) (if taken)	
	casured): Tubing	psl flowing;	····	psl shut-in
		psi flowing;		psi shut-in
Gravity	API (corrected to	60° F.)	prod t w	

DRILL STEM TESTS

D.S.T. No.	From	То	Tool Open (Min.)	ShutIn	F.P.	8.I.P.	Recovery	Cushion
				See	attached	Page 4		
	· .,							

LOGS RUN

Туре	Intervals				
	From	То			
See attached Page 3					

FORMATION RECORD

			ON RECORD		
From '	То		E NO. AND DESCRIPTION		Top of Formation
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Adapters-Material

Hudget Bureau No. 42-R-355.3. Approval expires 12-31-55.

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Approval expires 12-31-56. [11 Ling 76.]
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FORMATION RECORD—Continued

			SH	OOTI	NG R	ECORD			
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GEOLOGICAL PROSPECTUS

Division Billings		Lease No. 3687					
Operator Murphy Corporation Well	Name East Poplar Unit	Well No. 72					
Location: Section SW SE 22 Town	shdp_28N	Range 51E					
Pool Name: East Poplar Coun	ty Roosevelt	State Montana					
Type of Well: Oil: X Gas	Exploratory	DevelopmentX					
Objective Formation Madison "C" Z	one Projected Depth: 50	8801					
Well Elevation 2150' K.B. (est.)							
Expected Stratigraphic Section and	Estimated Depths:						
Judith River 840 (4360 (-2210)					
Fag1e1193 (4435 (-2285)					
Miobrara2054 (Greenhorn2410 (4700 (-2550)					
Muddy2975 (4775 (-2625) 4905 (-2755)					
Dakota3190 (5055 (-2905)					
Morrison3480 (-1330) Kibbey Sands to	ne5220 (-3070)					
Swift3675 (-1525) Kibbey Limeston	ne5350 (-3200)					
Vanguard4000 (5450 (-3300)					
Rierdon4175 (5570 (-3420)					
		5715 (-9565) 5733 (-3583)					
Anticipated Pay Horizons, Net pay	and Expected Depther	3/33 (=3363)					
Kibbey Sandstone							
Recommended Coring and Formation T	esting Program:						
Core	<u>Test</u> :						
Heath sands40	Heath Sandstone						
Kibbey Sandstone20	Kibbey Sandstone						
φ ⁿ Λ ⁿ Zone20° φ ⁿ Rt Zones30°	SA Zone						
"C" 7one30°		ther tests at discretion 11 site geologist.					
• Core and test only if well is ru Limestone.		#55 on the Kibbey					
Recommended Sampling and Logging Programs							
20° samples from 2000° to 4000° 10° samples from 4000° to total de 5° samples through the following 1- Muddy sandstone 2- Heath 3- Kibbey sandstone 4- Top Madison to "A" Zone.	sections: 5" E.S. from 2 5" Microlog fr	ottom surface pipe - T.D.					

Remarks: (including pertinent data relative to location accessibility, unusual drilling problems due to surface or subsurface conditions, etc.)

Bill Sane 3-9-56
Thelala Geologist Date

WELL DRILLING PLAN

0

Field or Area	East Poplar	Division Billings
County or Parish	Rooseve1t	Total Anticipated Depth 5880*
Lease Fast Popla	r Unit	Well Name East Poplar Unit Well No. 72
Hell Location	SW SE Section 22	-T28N-R51E, Roosevelt County
Lowest fresh water Casing and tubing		ce casing program):
Conductor	From 0	To Size Weight Crade Bit Size 250 13-3/8" 48# 11 17-1/4"
Surface		230 13-170 407 11 11-174
Intermediate		
Production	0	5880 5-1/2" 15,50# J 8-3/4"
Tubing	0	5880 2-3/8" 4.70# J EUE
to check for water	flow before set	e shead for 1000° or through the Judith River formation ting 13-3/8" casing. If flow is encountered, ream down Do not set 13-3/8" in this event.
	rs1 to 4400' H	igo Ph red mud from 4400° to T.D.
	٠.	
Coring Nethod and	Size Core Bits t	to be Used <u>Diamond 7-7/8"</u>
Intervals Cores to	be Amalyzed	Heath, Kibbey, and Madison "L" cone
Nothed of Duill Ca	Tostina d	Noum tost with 90 -inute shut in
herefor of marries	em restinga	hour test with 30 minute shut in.
Anticipated Comple	tion Zone	Kibbey
Method of opening	pay, perforation	or open hole, and approximate interval: perforations
Expected Formation	Treatments	500 gallons of mid acid.
		Plustion, or Completion Purposes As in Geological
Remarks: Dual contests are favorable		(ibbey and Madison "C" Zone will be considered if the
		. /

Date 3/9/56

Production Superintendent Hand Inco

COMPLETION DATA

CASING: Ran and cemented 33 jts. (1048.83') of 9-5/8", 32#, H-40, 8rd. thd., R-2, ST&C, American casing. Landed 11.50' below RKB at 1060.33'. Howco float shoe on bottom and Howco centralizer at 1045'. Cemented with 400 sacks of Ideal regular cement with 2 percent CaCl2. Circulated approximately 50 sacks of clean cement. Bumped plug with 1000#, released pressure, float held ok. Job complete at 4:00 P.M., 3-18-56. Tested 9-5/8" casing and blowout preventers with 1000# for 30 minutes, held ok.

COMPLETION: Plugged and abandoned 4-8-56. Plugged as follows-Plug #1, 5850'-5775', 30 sacks Slo-set cement.
Plug #2, 5754'-5629', 50 sacks Slo-set cement.
Plug #3, 5580'-5455', 50 sacks Slo-set cement.
Plug #4, 5366'-5210', 60 sacks Slo-set cement.
Plug #5, 4910'-4990', 35 sacks Slo-set cement.
Plug #6, 830'-900', 30 sacks Slo-set cement.
Bottom of 9-5/8" surface casing.

Plug #7, 8 sacks cement top of 9.5/8" surface casing. Rig released at 2:00 A.M., 4-8-56.

ELECTRO LOG DATA

(2) 1 (2) 1 (2) 2 (2)

TYPE OF LOG

INTERVAL, LOGG /:

Schlumberger Electrical Survey 2" Schlumberger Microlog 5"

1065/1-5890 1065/1-5890

LOG TOPS

	Depth	Datum	Thickness
Eagle Niobrara Greenhorn Graneros Muddy Sd Dakota Swft Vanguard Rierdon Piper Sh Gypsum Sprgs Spearfish Amsden Heath Otter Kibbey Sd Kibbey Ls Medison A-1 A-2 A-3 A-4 B-1 B-2 B-3 B-4 B-5 C-1	1227 2080 21,27 2636 3025 3681, 1,197 1,357 1,528 1,937 1,528 1,937 5,586 5,558 5,71	+ 930 + 77 - 270 - 479 - 843 -1068 -1527 -1855 -2040 -2363 -2571 -2663 -2571 -2663 -2775 -2940 -3081 -3229 -3400 -3411 -3423 -3554 -3571 -3571 -3571 -3571 -3571 -3571 -3571 -3571 -3571 -3571	11110knæss 5° 6° 34° 8° 16° 5° 4° ?
C=2	5871	-3714	1 64

$\underline{\mathbf{E}} \ \underline{\mathbf{L}} \ \underline{\mathbf{E}} \ \underline{\mathbf{C}} \ \underline{\mathbf{T}} \ \underline{\mathbf{R}} \ \underline{\mathbf{O}} \qquad \underline{\mathbf{L}} \ \underline{\mathbf{O}} \ \underline{\mathbf{G}} \qquad \underline{\mathbf{D}} \ \underline{\mathbf{A}} \ \underline{\mathbf{T}} \ \underline{\mathbf{A}}$

TYPE OF LOG

INTERVAL LOGGED

LOG TOPS

Fag1e1227	
Niobrara	(+ 77)
Greenhorn2427	(~ 270)
Graneros2636	(- 479)
Huddy Sandstone 3000	(-843)
Dakota3225	(-1068)
Swiftmanagementalessessessessesses 8684	(-1527)
Vanguard4012	(-1855)
Rierdon4197	(-2040)
Piper Shale4357	(-2200)
Gypsum Springs4520	(~2363)
Spearfish4728	(-2571)
Amaden4820	(-2663)
lleath4932	(-2 775)
Otter======5097	(-2940)
Kibbey Sandstone5238	(-3081)
Kibbey Limestone5386	(-3229)
Hadison5486	(-3329)
"A" Zone5580	(-3423)
"B-1" Zone	(-3554)
"B-2" Zone5728	(-3571)
"C" Zone	,
	(-0144)

DRILL STEM TESTS

- D.S.T. #1: 5842°-5881.5°, Halliburton straddle packer test, on show on fractured planes above the "C" Zone Intercrystalline, 1/2" bottom choke, no water cushion. Tool open 2 hours, shut in 30 minutes. Tool opened with very weak blow, continued for one hour and then died. Recovered 5° drilling fluid, no show of oil, gas, or water. IBHFP--15#, FBHFP--15#, BHSIP--68#, Hydro--3365#.
- D.S.T. #2: 5864*-5872*, ("C" Zone Intercrystalline porosity), Halliburton single packer test, 1/2" bottom choke, no water cushion. Tool open 4 hours, shut in 30 minutes. Tool opened with weak blow and continued throughout test. Recovered 90' gas, 150' slightly oil-and-mud-cut salt water. IBHFP--15#, FBHFP--65#, BHSIP--2995#, Hydro--3365#.
- D.S.T. #3: 5706'-5722', ("B-1" Zone), Halliburton straddle packer test (drill collars for tail pipe), 1/2" bottom choke, no water cushion. Tool open 4 hours, Shut in 30 minutes. Tool opened with very weak blow, decreased to bubble at end of test. Recovered 630' slightly muddy salt water with trace of gas, no show of oil. IBHFP--15#, FRHFP--195#, BHSIP--0#, Hydro--3365#, bottom packer held ok.

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Company MURPHY CURPORATION Date 4-6-58 Lab. No. 544 Well No. Unit #72 Location C SW SE 22-28N-51E

Formation C Zone Field East Poplar County Resservelt State Montana Depths 5830-5872

Sample	Representative	Midpoint of	Permen		Effective Porosity	Den	sity	Saturat % of Pore	Space
No.	of Feet	Sample	Radial	Vertical	. Percent	Bulk	Matrix	Resid. 041	Water
NS 1 2 5 4	Cere No. 4 5030-68 68-69 69-70 70-71 71-72	563058 7 2	Rec. 42° 0.02 0.07 0.29 0.32	5000÷ 0•82 5000÷ 0•05	8.99 7.99 15.1	2.51323	2.72 2.75 2.75	6.4 4.3 9.0 25.4	30.3 76.6 50.5 46.1
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CORE DESCRIPTIONS

Core No. 1 4955-4969, cut 14; recovered 11-1/2;

4*0" Lime, shale and dolomites interbedded, gray, dense, lime, buff dolomite and dark gray shale, no show; top foot open vertical fracture, calcite replacement; entire matrix of unit hard and tight.

- 2.6% Lime and shale as above but core highly fractured both vertical and horizontal, slight gas odor, few scattered spots of weak, golden fluorescence.
- 5:0" Sandstone; medium grained, redish-brown, angular, well comented, hard and tight, bottom foot developed alight porosity and permeability but no show.

Core No. 2 5230-5255, cut 25', recovered 25'.

- 5:6" Shale; dark gray to black, platey, with hard white inclusions of anhydrite.
- 2°0" Sandy silvatone; red and green, no show.
- 1ºC" Interbedded siltstom, interbedded in shalo,
- 7'0" Siltstone; sandy, fine grained, red, no show, no porosity and permeability.
- 8*6" Siltatone; sandy, fine grained, red, black and green, no perosity and permeability or show.
- 1'0" Mudstone; white, light gray, hairline fracture.

Core No. 3 5255-5275, cut 201, recovered 201

- 2:0" Sandstone; grayish-purple, medium grained, quartzitic, hard, tight, no porosity and permeability, no show.
- 1'0" Shale; black, poker chip, hard, dense.
- 2'0" Sandstone; grayish-purple, medium grained, quartitic, hard, tight, no porosity and permeability, no show.
- 5°0 Sandstone; reddish-brown, medium grained with poor perosity and permeability, hard, tight, no show.
- 3'0" Shale; brick red, hard; siltstone, slightly silty.
- 7°C Sandstone; red, hard, dense, medium grained, no show in matrix, bettem 2° open vertical fracture, no show on planes.

Core No. 4 5830-5872, cut 42', recovered 42'.

- 14'0" Limestone; thin beds of lime and anhydrite, dark gray lime, dense, no porosity and permeability, no show, light gray anhydrite.
- 3'5" Limestone; light gray-brown, dense to finely crystalline, entire unit fractured from open to hairline, gas odor on fresh break, even golden fluorescence on hairline fractures, no show in matrix itself.

- 10'6" Limestone; light gray, brown, dense with no fracturing, no show except 3 thin streaks of porosity developed in fine crystalline limestone with even golden fluorescence, oil odor and taste, first 2" 1" down, second 4" 6" down, third 6" 9-1/2" down.
- 3.6" Limestone; light gray with open vertical fracture cemented with calcite, spotty golden fluorescence on fracture planes, no show in matrix.
- 4:0" Limestone; as above with no fracturing, four 2" streaks of perceity and permeability, bleading oil from finely crystalline limestone, golden fluorescence.
- 2.6" Limestone; light gray, dense, open vertical fracture leading down into the "C" Zono intercrystalline, fractures blesding oil.
- 4.60 Limestone; light gray-brown, fine crystalline with good fluorescence and odor, good matrix show, open vertical fractures throughout unit, poor perosity and permeability. ("C" Zone intercrystalline 12' low to #55, 4' high to #63.)

MUD PROGRAM SUMMARY

MUD SERVICE CO.:

Northern Mud Company

MUD ADDITIVES AND COST:

	Su	face Ho		ace - T.D.	Tot	al
Material	Am	c. Co	st Amt.	Cost	Amt,	Cost
Magcobar Magcogel Cement Magcophos	l,18 13:	1 283 5 9		104.63 82.31	455 169 5	1,286.53 366.05 9.25 27.50
Caustic Soda Quebracho Driscose Hulls Total Mud Drayage Total Cost	20		34 58 10 • 00 • 39 • 73	459.00 768.50 450.00 1,864.44 15.45 1,879.89	34 58 10 20	459.00 768.50 450.00 90.00 3,456.83 166.18 3,623.01
·	Total Cost	Feat Drld.	Cost Per Foot	Days Used	Cost Pe	er
UNIT MUD COSTS: Spud - T.D. Spud - Surface Surface - T.D.	3,623.01 1,743,12 1,879.89	5899 1075 4824	.61 1.62 .39	24 3 21	150.96 581.04 89.52	

MUD PROPERTIES:

Depth	Weight	Viscosity	Water Loss	Нq	Remarks
1075 4500 4950 5175 5420 5770 5899 T.D.	10.7 9.8 10.7 10.5 10.6 10.5	1:0 1:4 1:3 1:8 52 57	11.4 14.2 12.0 13.4 14.4 10.3	11 13 13,5 13 12,5	Surface hole

SUMMARY:

An 8 3/4" hole was drilled to 1110^3 and then the hole was reamed to 1075^3 with a 12 1/4" reamer. The 9 5/8" surface casing was set at 1060^4 . The drill pipe was stuck and circulation was lost while reaming. Also, it was necessary to weight up to 10.7#/gal mud to hold a water flow from the Judith River sand. As a result, the mud cost for drilling the surface hole was nearly half of the total mud cost.

The hole was drilled to a TD of 5899' with an 8 3/4" bit. At approximately 1400' the native clay and water mud was converted to a high pH red mud with addi-

tions of caustic and quebracho. Mud weight was controlled from 10.3# per gallon with additions of water or barite and the viscometric properties were maintained between 45 and 55 sec/qt with gel, quebracho, and caustic. Driscose was added to control the water loss below 15 cc.

Four cores were taken and three drill stem tests were run. Good hole conditions were maintained throughout the drilling of the well. The mud cost from surface hole to TD was reasonable and the mud was maintained as recommended. The well was plugged and abandoned at 2:00 A.M., April 8, 1956.

DRILLING BIT RECORD

Bit No.	Make	Size	Туре	Serial No.	Depth Ort
· 1 2 1 3	Sec. n n	8 3/4 12 1/4 8 3/4 n	53P 98J 53P S6	103685 37339 108685 111659 111658	1110 1110 Reen 2464 Rerun 3320 3555
4 5 6	n n	n n	ți R	113565	3727
6 7	ור מל	11	11	111555 111663	4281 4615
9	. 11	13	EI .	111550	4955
10	17	TP.	13	111634	4996
ıı.	17	Ħ	π. :	111684	5036
	17	17	и.	11.1557	5065
13	11	17	17	111538	51 <u>1</u> 0
12 13 14 15	Hughes	Ħ	O:IV	85960	5230
15	17	17	· #	85962	5387
16	17	17	71	51776	5573
17	17	17	11	85956	5811
18	11	n	π	Ra-run	5898 T.D.

TOTCO RECORD

Depth Cut	Degrees Off
300° 1660° 3732 5360	1/և 3/և 1 .1

Christensen Diamond Core Bit Record Bit Serial No. V-3028

Core No.	From	То	Footege
1	4955	4969	11,
2	5230	5255	25
3	5255	52 7 5	20
4	5830	5872	1,2

SAMPLE DESCRIPTION

23222	CTASUSE	######################################
2200	2260	Shalo; light gray, micaceous, silty; sandstone; light gray to white with trace of pyrite.
2260	2420	Shale; light gray, slightly sandy with above gray shale.
2420		Sample Top Greenhorn
2420	2505	Shale; Hight gray, calcareous, with traces of tan, calcareous specks, some light gray, crystalline limestone; trace of above sandstone.
2500	2660	Shale; gray, micaceous, sticky; trace of above specks.
2560	2950	Shale; dark gray becoming silty, trace of light gray siltstone.
2950	2990	Shale and siltatone as above.
2990		Sample Top Muddy
2990	3080	Sandstone; light gray to medium gray, fine to medium grained, poor percenty and perceability, no show, with trace of glaucomitic sandstone, has black and white salt and pepper appearance, gray silty shale.
9080	3220	Shale; dark gray with trace of above sandsteme.
3220		Sample Top Dakota
3220	3300	Shale; as above with trace of gray, waxy siltstone.
3300	3,420	Shale; dark gray without siltstone.
8430	3540	Sandstone; fine grained, light gray, fair peresity and permeability, with gray shale as above.
9540	3580	Sandstone; medium grained, white, fair porosity and permeability, no show, dark gray shale,
3580	3640	Shale; dark gray, lignitic.
9640	3650	Shale; as above with light gray, fine grained, silty sandstone.
3680		Sample Top Swift
3 680	3720	Sandstone; medium to fine grained, with trace of glauconitic, black, splintery shale.
3720	3780	Sandstone; as above with brown to black shales.

Year Sec. 555. 328. 33.

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الشائلانة و	DESCRIPTION	COMITMORP

- Tierran		AND RESIDENCE OF THE PROPERTY
3730	3900	Shale; dark gray to black splintery, with trace of brown and singrained, white to light gray sandstone.
3900	3930	Sandatone; light gray, silty, fine grained, poor porosity and permeability, no show; trace of gray siltstone with dark gray shale.
3930	4000	Shale; dark gray with above siltstone.
4005		Sample Top Vanguard
4000	4020	Sandatone; fine, graylsh-green, soft, fair porosity and permeability, no show; black splintery shale; traces of gray timey siltstone.
4020	4050	Shale; dark gray to black, apilintery; calcareous sandstone as above.
4050	4070	Sandstone; fine to medium grained, gray with black carbonaceous spots, fair porceity and permeability, no show; above shale.
4070	4170	Shale; dark gray to black with some brownish gray silty shale; sandstone; as above becoming darker gray.
4175		Sample Top Rierdon
4170	4200	Sandetons; dark gray, silty sandstone with small speck of lighte, also dark gray siltstoms.
4200	4240	Shale; dark gray, limey with above sandstone; traces of light cream to buff limestone; also trace aragonite.
4 240	4280	Shale; dark gray, brown, with traces of pyrite.
4230	4360	Shale; dark gray, brown as above; trace of lighte.
4365		Sample Top Piper Shale
4360	4450	Shale; dark grays as above with browns and brownish-green, trace of red silty shale.
4460		Sample Top Piper Limestone
4460	4430	Limestone; light gray-brown, dense, with shales as above.
4480	4520	Shale; light gray with traces of red and dark gray plus the above limestone.
4520		Sample Top Cypsum Springs
4520	4570	Shale: as above with trace of soft white anhydrite with light gray to buff limestone.

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SAMPLE	DESCRIPTION	CONTINUED

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4570	4610	Shale; as above with salt and pepper, fine grained sandstone;limestone as above scattered.
4610	4630	Shale; as above with gray, silty sandstone with above salt and pepper sandstone.
4630	4680	Shale; dark gray to black with buff to gray, dense limestone.
4680	4720	Shale; as above with trace of white crystallina limestone.
4725		Sample Top Spearfish
4720	4820	Shale; brown to reddish, silty with traces of white crystalline line; with above dark gray shales; also sandstone, fine grained, white to tan, hard, tight.
4820		Sample Top Amaden
4820	4830	Dolomite; light gray to tam; light gray, finely crystalline limestone; above shale.
4830	4840	Shale; dark gray with traces of above delomite and limestone.
4840	4880	Limestone; light gray to buff, no porosity, no permeability; multi colored shale.
4870	4930	Shale; dark gray, platey; limestone as above.
4930		Sample Too Heath
4930	4 955	Shale; as above with traces of light gray, limey siltstone.
4955	4989	Core No. 1, cut 14', recovered 11-1/2'.
4969	4990	Sandstone; medium grained, red and white, well cemented, angular, trace porosity and permeability, no show; dark gray shale.
4990	5000	Shale; dark gray with trace of above sandstone.
5000	5035	Sandstone, red, white and purple, medium grained, well cemented, trace porosity and permeability, no show; dark gray shale, red and purple.
5035	5090	Shale; multi-colored, dark gray, purple and brown.
5090		Sample Top Otter
5090	5100	Shale; multi-colored, with green Otter and above multi-colored shales; trace of buff colored doloaite.
5200	5110	Dolomite; light tan, dense, poor porosity and permeability, trace of asphalt on few pieces, will cut but no fluorescence.

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SAMPLE	DESCRIPTION	COMMENTATION

5110	5120	Shale; dark grays, light gray-brown.
5120	5140	Dolomite and limestone; dark tan to brown, crystalline; light tan, gray limestone.
5140	5150	Shale; dark grays to black, brittle.
5150	5170	Polomite and limestone; dark tan to brown; gray limestone.
5170	5220	Shale; dark gray to black.
5230	:	Sample Top Kibbey
5220	5230	Shale; hard, red, and black platey shale with traces of anhydrite; trace fine grained, hard, tight sandatone.
5280	5255	Core No. 2, cut 25', recovered 25'.
5255	5275	Care No. 3, cut 20°, recovered 20°.
5275	5805	Shale; black, poker chip with trace of above sandstone; sandstone red and white, medium grained, hard, fair porosity and permeabiline show.
5305	5325	Shale; dark gray to black with trace of red, silty shale.
5325	5 345	Sandstone; red and white, fair porosity and permeability; some purple shales.
5345	5385	Sandstone; as above, no visible porosity and permeability; with black and purple shale.
5385		Sample Top Ribbey Limestone
5335	5400	Idmestone; light gray to gray-brown, both earthy and crystalline; trace of anhydrite; purple and black shale.
5400	5420	Limestone; light gray-brown as above with trace porosity and permeability, no show.
5420	5485	Shale; dark gray with stringers of above limestone and scattered brown dolomite.
5485		Sample Top Madison
5485	5495	Limestone; light gray, brown, with tan, silty shale and white dense anhydrite.
549 5	5505	Shale; multi-colored, dark grays, greens and browns.
5505	5515	Anhydrite and soft, white crystalline line, no show.

5515 5555	Limestone; light gray-brown; trace of above anhydrite and	ښد
•	limestone; brown, silty shale and dark gray splintery, buff	
_	colored dolomite.	

5555 5550 Limestone; light gray, with trace of porosity and permeability, no show.

5580 Sample Top "Ar Zone

- 5580 5590 idmestone; dark gray-brown, microcrystalline with trace perceity and permeability, sporty weak fluorescence or individual pieces (less than 1% of total sample); fluorescence poor to me cut from pieces that have fluorescence; dark gray shale; trace of brown, sandy shale.
- 5590 5620 Limestone; dark gray, both donse to finely crystalline; as above with a few pieces of the above show.
- 5620 5650 Limostone; light gray, dense limestone with white to light gray antydrite.
- 5650 5690 Anhydrite: light gray, dense; black shale; traces of buff colored dolomite: light gray limestone.
- 5690 5710 Limestone; dark gray, demse, no show; traces of above limestone and shale.

5712 Sample Top "B-1" Zone

- 5710 5760 Limestone; dark gray-brown, finely crystalline, to dense, pale yellow spotty fluorescence, poor out from fluorescent pieces; trace light brown to buff dolonite, no show.
- 5760 5760 Anhydrite and shale.
- 5760 5770 Shale; dark gray, limey; dark gray, dense limestone and white anhydrite.
- 5770 5780 Anhydrite; white and light gray, dense.
- 5730 5830 Limestone; light to dark gray, brown; white scattered anhydrite, with brown to buff colored delomite.
- 5830 5372 Core No. 4, cut 42', recovered 42'.
- 5870 5880 Linestone; as above.
- 5880 5898 Limestone; light gray, dense, no show.

Total Depth 5899 Schlumberger equals 5898 Driller.

P. O. BOX 593

5 & 915 N. 25TH ST

WATER ANALYSIS REPORT

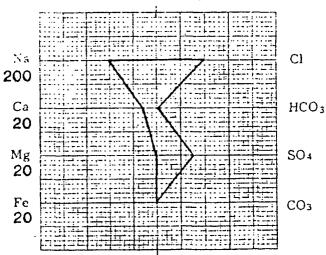
Lab.	No.	

FieldE8	ist Popiar		County		WOLLTHUR
Well No	Unit		Location		
Formation B-	1 Zone		Depths		
Operator Mu	rphy Corpo	ration		Date Sampled	4-9-56
DST No3_	Sample			Date Analyzed	6-1-56
Other Data To	ol open 4 !			ered 630' slightly	
salt wat	er with tr	ace of gas.	FP 15-195	lbs., SIP O lbs., H	P 3365
lbs. Sa	mple clear	reddish co	lored water	with mud on bottom.	
					
Constituents	PPM .	MEQ.	MEQ. %	Total Solids in P	arts per Million
Sodium	47,098	2048.61	48.32	By evaporatio	n <u>127,960</u> :
	_	_			
Calcium	1287	64.22	1.51	After ignition	126,240
			0.15		3.05 400
Magnesium	84	6.90	0.17	Calculated	125,488
C 14 4	7069	161 17	2 57	_{pH} 6.4	
Sulfate	7268	151.17	3.57	pH6.4	
Chloride	69,438	1958.15	46.19	S :(: G :: 6:00)	1.091
Cinoriae	09,430	1370.17	40.13	Specific Gravity@ 60°1	
Carbonate	0	0	0		
Carbonate		· ·	•	Resistivity @ 68°F	
Bicarbonate	635	10.41	0.24	ohms/meter³_	0.076
2.caroonate		,	·		
Chloride as NaC	ci 114,503	PPM.	Total Solids Fu	om Resistivity as NaCl1	.21,732 PPM
			1 3 44 . 5 3 . 1 . 1	Treatment of tract	I I IVI
POTE OU					

SOTE Sodium and potassium reported as sodium. MEQ milliequivalents per liber. PPM parts per milion imilligrams per liter). I PPM equivalent to 0.00015

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



```
ocation: C SW SE Sec. 22-T28N-R51E
        Spacing -160 acres
levation: 2157 K.B. - 2115 Gr.
           3-15-56
budded:
ompleted: P & A 4-8-56
          5898 Driller = 5897 Schl.
rod. Zones: None
           Schlumberger Tops
              Depth
                      Datum
                               Thickness
udith River
              ---
              2127
                       - 270
reenhorn
              3000
                      - 8L3
iddy Sd
              3225
                      -1068
akota Silt
              11163
                      -2306
iper Ls
              1820
                      -2663
nsden
                      -2775
eath
             *L932
              5097
                      -291,0
tter
              5238
                      -3081
ibbey Sd
ibbey Ls
              5386
                      ~3229
              5486
adison
                      -3329
-1
              5557
                      ~3∏00
                                   Jr 8
-2
              5568
                                   51
                      -3411
·3
·4
              557山
                      -3417
                                   60
            *5580
                      -3423
                                  341
•1
            *5711
                      -3554
                                   81
•2
             5728
                      -3571
                                  161
·3451
             5749
                                   51
                      -3592
             5780
                                   11
                      -3623
              5817
                      -3660
                                   ?
            *5857
                      -3700
                                   ?
.2
            *5871
                      -371L
                                  161
**Probable prod. Zones (From DST struc-
  tural position, etc.
 *Shows
    Drill Pipe Corrections (Made)
    4826 Driller = 4825 SLM (-I')
    5275' Driller = 5276 SLM (+1')
ST POPLAR FIELD
```

```
#1 4955-4969' Rec. 11.5' Heath
#2 5230-5255' Rec. 25' Kibbey Sd.
#3 5255-5275' Rec. 20' Kibbey Sd.
#4 5830-5872' Rec. 42' G-2
```

Drill Stem Tests:

DST #1 5842-5861.5' C-1-2 Tool opn w/v.weak blow, cont'd l hr & died. Tool opn 2 hrs, SI 30 min. Rec. 5' drlg fluid, no show of oil, gas or water. IBHFP 15#, FBHFP 15#, BHSIP 68#, Hydro 3365#.

History Subsequent to Completion:

None

PRODUCTION & INJECTION DATA ____